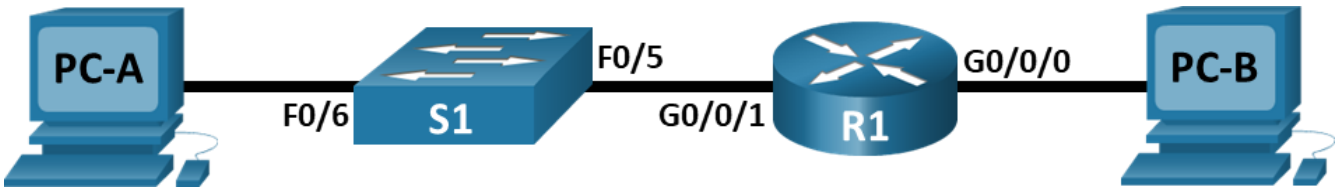
Write your name here: Mohamad Imran

Practical Test

IEB 21703 Computer Network

Topology



Assessment Objectives

7 marks

Part 1: Setup cable connection and develop an IP Addressing Scheme (44 points)

Part 2: Configure Device IP address and Security Settings (54 points)

Part 3: Test and Verify IPv4 and IPv6 End-to-End Connectivity (2 points)

Scenario

Before you begin this test, I need you to key in your name and email address in the User Profile in the Packet Tracer. Also save the file and set the filename to your FULL NAME. I will not be able mark your test if such info are not provided. In this Practical Test you connect and configure the devices in a small network. You must configure a router, switch and PCs to support both IPv4 connectivity. You will configure security, including SSH, on the router. In addition, you will test and document the network using common CLI commands.

Instructions

Part 1: Develop an IP Addressing Scheme

Total points: 44

a. You will subnet the IP Address [**see Packet Tracer instructions**] into two subnets that will support the required number of hosts. No subnet calculators may be used. All work must be shown using the IP Addressing worksheet below. Please ensure your answers are written in the blue boxes.

IP Addressing Worksheet

Specification	Subnet A	Subnet B	
Number of bits in the subnet	3	3	2 marks
New IP mask (decimal)	255.255.255.224	255.255.255.224	2 marks
Maximum number of usable subnets	8	8	2 marks
Number of IP address per subnet	32	32	2 marks
Subnet IP address	209.165.20.0	209.165.20.32	2 marks
First IP Host address	209.165.20.1	209.165.20.33	2 marks
Last IP Host address	209.165.20.30	209.165.20.62	2 marks
Broadcast IP address	209.165.20.31	209.165.20.63	2 marks

b. Record your subnet assignment in the table below.

1) Assign the first usable host IPv4 address of each subnet to a router interface

(i) subnet A is hosted on R1 G0/0/1

(ii) subnet B is hosted on R1 G0/0/0

2) Assign the last usable host IPv4 address of each subnet to the PC NIC

3) Assign the second usable host IPv4 address of subnet A to S1

Description	Subnet A	Subnet B
Maximum number of hosts	30	30

2 marks

c. Record the IP address information for each device:

Device	IP address	Subnet Mask	Gateway	
PC-A	209.165.20.30	255.255.255.224	209.165.20.1	6 marks
R1-G0/0/0	209.165.20.33	255.255.255.224	N/A	4 marks
R1-G0/0/1	209.165.20.1	255.255.255.224	N/A	4 marks
S1	209.165.20.2	255.255.255.224	209.165.20.1	6 marks
PC-B	209.165.20.62	255.255.255.224	209.165.20.33	6 marks

Part 2: Configure Device IP Address and Security Settings

Total points: 54

Step 1: Configure R1.

Configuration tasks for R1 include the following:

Task	Specification	Points
Router name	R1	2 mark
Domain name	ccna-lab.com	1 mark
Encrypted privileged EXEC password	ciscoenpass	1 mark
Console access password	ciscoconpass	1 mark
Create an administrative user in the local database	Username: **admin** Password: **admin1pass**	2 marks
Set login on vty lines		2 marks
Set vty lines to accept SSH connections only		2 marks
Encrypt the clear text passwords		1 mark
Configure an MOTD Banner	Authorised Users Only!	1 mark
Configure Interface G0/0/0	Set the description: **Connection to PC-B** Set the Layer 3 IPv4 address Activate Interface	6 marks
Configure Interface G0/0/1	Set the description: **Connection to S1** Set the Layer 3 IPv4 address Activate Interface	6 marks

Step 2: Configure S1.

Configuration tasks for S1 include the following:

Task	Specification	Points
Switch name	S1	2 mark
Domain name	ccna-lab.com	2 mark
Encrypted privileged EXEC password	ciscoenpass	1 mark

Task	Specification	Points
Console access password	ciscoconpass	2 marks
Shutdown all unused interfaces	F0/1-4, F0/7-24, G0/1-2	1 mark
Create an administrative user in the local database	Username: **admin** Password: **admin1pass**	1 mark
Set login on vty lines		1 mark
Set vty lines to accept SSH connections only		1 mark
Encrypt the clear text passwords		1 mark
Configure an MOTD Banner	Authorised Users Only!	1 mark
Configure Management Interface (SVI) on VLAN1	Set the description: **Connection to R1** Set the Layer 3 IPv4 address Activate interface	2 marks

Step 3: Configure host computers.

After configuring each host computer, record the host network settings with the **ipconfig /all** command.

PC-A Network Configuration		
Physical Address	00D0.BC06.EE3B	2 marks
IPv4 Address	209.165.20.30	2 marks
Subnet Mask	255.255.255.224	1 mark
IPv4 Default Gateway	209.165.20.1	2 marks

PC-B Network Configuration		
Physical Address	000A.41B6.46C0	2 marks
IP Address	209.165.20.62	2 marks
Subnet Mask	255.255.255.224	1 mark
Default Gateway	209.165.20.33	2 marks

Part 3: Test and Verify End-to-End Connectivity

Total points: 2

Use the ping command to test IPv4 connectivity between all network devices.

Use the following table to methodically verify connectivity with each network device. Take corrective action to establish connectivity if a test fails:

From	To	Protocol	IP Address of Destination	Ping Results	
PC-A	PC-B	IPv4	209.165.20.62	Success	2 marks